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ABSTRACT

The relationship between success on proficiency tests and poverty has been widely discussed. This study explores the use of a neighborhood indicator of socioeconomic status based on school lunch participation of elementary school students in that neighborhood, and examines the relationship of poverty to success on a high school proficiency test in seven neighborhoods for a large urban school district. Both areas are in Cleveland (Ohio). Regression results indicate that on the average, an additional 10 percent of students not eligible for free lunch are associated with an additional 4 percent of students passing the proficiency test. At the high school level, income indices for residential zones and pass rates on the proficiency tests were correlated. Policy implications of links between poverty and proficiency success rates are discussed. One table presents a scatterplot for the percent passing all tests with the percent eligible for free lunch. (SLD)

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PROFICIENCY TESTING AND POVERTY: LOOKING WITHIN A LARGE URBAN DISTRICT

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Paper presented at the annual meeting of the American Educational Research Association in Atlanta, Georgia, April, 1993

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PROFICIENCY TESTING AND POVERTY:
LOOKING WITHIN A LARGE URBAN DISTRICT

Introduction

The proficiency test movement, closely tied with accountability, is beginning to affect secondary school outcomes for more students. Juniors in Cleveland and other Ohio districts will have an additional requirement for graduation, despite concern that use of high stakes tests as an instrument for reform "... fails to acknowledge the realities of American schools, especially schools in urban settings." (McLaughlin)

In Ohio, cohorts of students beginning with the Class of 1994 will need to pass four Grade 9 proficiency tests in order to receive a diploma. The four proficiency test areas are mathematics, reading, writing, and citizenship. Tests are given in the Fall and Spring of each year, so a ninth grader who doesn't pass all four tests in the Fall gets at least seven more chances to retake the failed test(s) in order to graduate on time.

Cleveland City School District, serving 72,000 students in Northeast Ohio, is the highest of Ohio's six hundred plus districts in poverty, with 61.2% of students in families receiving Aid to Dependent Children (Ohio DOE) In percentage minority enrollment, at 77.2%, Cleveland ranks top among the state's eight major city districts. Cleveland is among the lowest in percentage of students passing the proficiency tests. After five opportunities to take the proficiency tests, slightly over 33% of Cleveland eleventh grade Class of 1994 have passed all four, compared with an estimated 75% statewide. The looming threat is that already scary dropout rates will increase in Cleveland and other urban school districts.

The relationship between success at proficiency tests and poverty has been widely discussed. One study found "a strong positive relationship between the economic status of a district's students and their performance on the test." (Lanese)

So far most analyses have compared districts with one another. Other analyses have focused on school as the unit. Meanwhile, several contextual studies "...indicate a clear need for research on the impact of neighborhoods on schooling outcomes." (Gamoran) Comparisons of neighborhoods within a large school district are made difficult by the lack of a convenient Socio-Economic Status (SES) indicator at that level.

Objectives

This study explores the use of a SES neighborhood indicator based on school lunch participation of elementary school students in that neighborhood. The study goes on to examine the relationship

of poverty to success on a high school proficiency test within a large urban school district. Do students from neighborhoods with a higher income pass at a greater rate than their poorer peers in the same district? If income and proficiency are positively related, what is the extent of this relationship?

Examination of relative success of neighborhoods within a large urban school district provides a focus on the lower end of the income spectrum and eliminates many confounding variables present in cross-district comparisons.

Method

The neighborhoods used as the units for this study are determined by old elementary school boundaries, with some later subdivisions. Slightly under 200 such "residential zones" (RZs) are currently used in the Cleveland City School District to assign students to schools under the desegregation plan.

Income indices for residential zones and pass rates on the proficiency tests were correlated. Having found a significant and positive relationship, regression was used to provide additional analysis.

Having obtained the best fit regression line, one notices that some RZs are a lot higher or lower than the line. A residual will measure the distance a given case is from the predicted value. Kirk suggests the use of residuals for "exploratory data analysis." Residuals here would be the actual percent of students passing all four tests minus the percent which would be predicted by the regression formula. If a RZ has a high positive residual, it would seem that somehow the influence of poverty is being overcome. We look at some interesting cases in the Neighborhood section below.

Data Source

The State of Ohio provides scoring of the Grade 9 proficiency tests through a contractor who sends student results in electronic and printed media to individual school districts. Since each student can take the four proficiency tests (until passed) twice a year in grades 9 through 12, it is the responsibility of each district to maintain and update cumulative results for each student. Comparative analyses can be readily performed on the cumulative file.

After the first two years of proficiency test administrations pass rates for residential zones ranged from 0% up through 58% of students passing all four tests (Mean = 0.24, SD = 0.14).

Obtaining a neighborhood income indicator required some effort. Census data is not easily matched to the student file. Cleveland, like many other districts, has available a school lunch code for each student, indicating level of eligibility. But experience has shown that free/reduced lunch is a more valid

indicator of population income at the elementary, than at the secondary, level. Considerable underreporting is commonplace at the secondary grades.

To circumvent the problem with some grades, income levels for neighborhoods were developed by obtaining the percentage of elementary students who were not eligible for free lunch, called "NONFREE" here. The range of values for the income level variable was from 0% through 72% not receiving free lunch (Mean = 0.23, SD = 0.13). The distribution of NONFREE values for the 191 residential zones was close to normal, somewhat more peaked (kurtosis = 1.12) and with a slight positive skew (skewness = 1.15).

Results

The correlation coefficient (Pearson r) between income level and pass rate was 0.429 (N=191, $p<.001$). Correlation is statistically significant and positive: higher income is related to greater proficiency within a single school district where many extraneous variables are controlled.

Slope of the regression line (0.41) indicated that on average an additional 10% of students not eligible for free lunch is associated with an additional 4% of students passing the proficiency test. See Figure 1 to observe the actual scatter of digits representing Residential Zones. Toward the left and higher in Figure 1 are less poor neighborhoods performing better than district average. If we project the regression line to the right to places where almost 100% of students are not eligible for free lunch, we obtain passing rates close to the state average.

Neighborhoods

Can we compare neighborhoods and schools with one another? Five contiguous residential zones (RZ) have been specially identified with letters on Figure 1. All five are below the district average in income and each is at least 97% African-American.

Figure 2 depicts the five RZs on a map and provides income and percentage passing statistics. As mentioned above, Cleveland operates under a comprehensive desegregation plan, so school feeder patterns are also indicated. By referencing Figure 1 we can tell that RZ C (2013) has above its predicted percentage of students passing all four tests, while the other four residential zones are all below predicted performance.

Does Wade Park school have an especially effective program for low-income students? Is it important that RZ 2013 students go to a nearby school for all grades through sixth? Since this analysis has weaker statistical significance than district-wide regression, we cannot rely on these observations alone. Nonetheless it can suggest study direction and can be strengthened by adding other performance indicators to validate these "micro" conclusions.

Discussion and Conclusions

Cleveland ranks among the lowest of Ohio's school districts in income level and the highest in percent of families on public assistance.

=> The validity of a convenient neighborhood poverty measure which uses school lunch eligibility rates for elementary students is supported here.

Even within the somewhat restricted income range represented in Cleveland's neighborhoods,

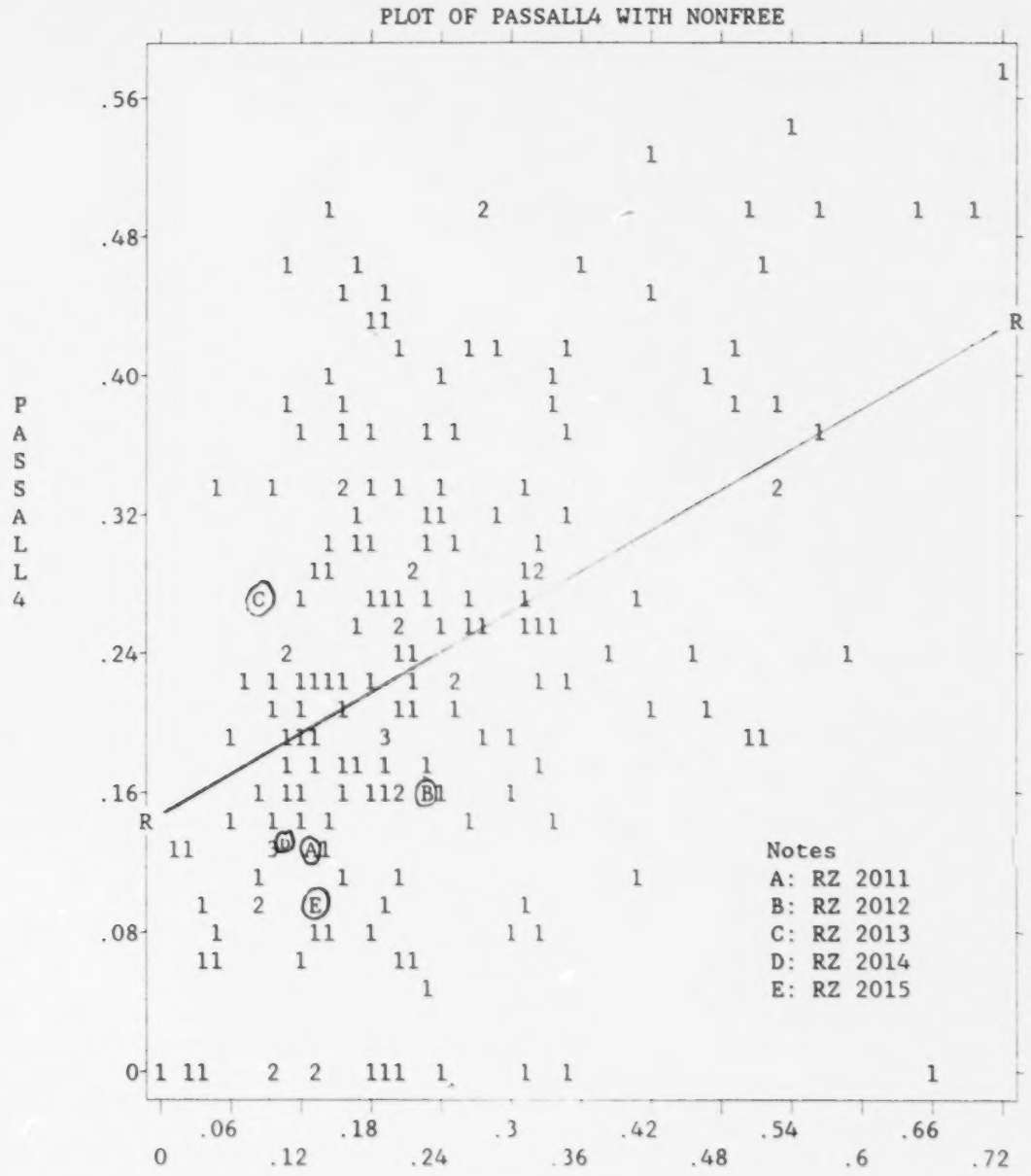
=> A significant and strong relationship is found between poverty and proficiency. This study controls extraneous variables including curriculum, expenditure per pupil, and racial makeup of schools, none of which vary much within the district.

Policy implications of the strong link between poverty and proficiency success rates require continued discussion. Do urban school administrators have the resources to be accountable for achieving satisfactory proficiency rates? What additional resources are most effective at improving performance of students from poor neighborhoods?

The second question above, regarding promising strategies for those most disenfranchised from American education, is one of active research. We mention here two authors with somewhat different perspectives who are calling for a major shift in emphasis. Coleman studied the pervasive lack of social capital to build the qualities the child brings from home. Coleman concluded that these can't be replaced by more school-like resources. Instead, such can only be remedied by "replacing [the lack of social capital] with resources which produce attitudes, efforts, and conception of self -- that is, those qualities that interact with the ones provided by the school." It may be that urban schools will need to accept more of the role of delivering these critical resources which are not school-like.

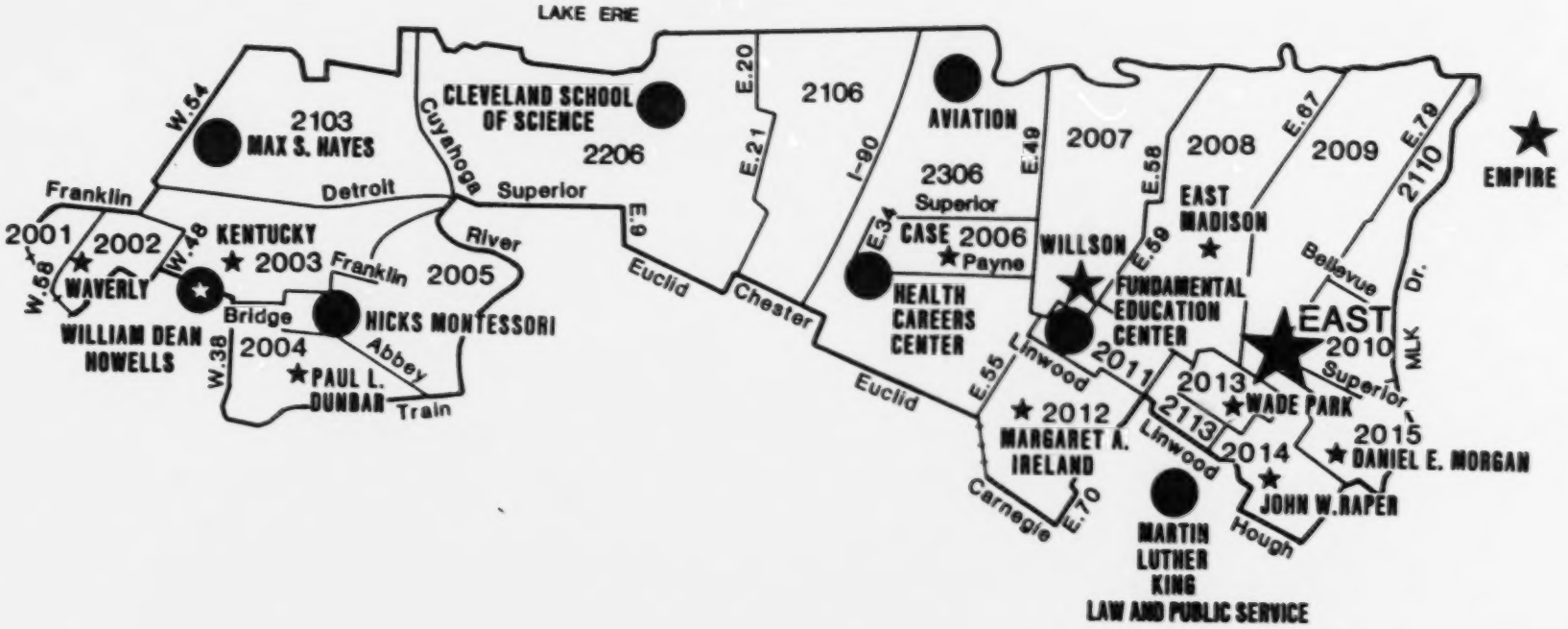
Analyzing academic performance and culture of involuntary minorities, Ogbu saw substantive weaknesses in both core curriculum and multicultural education approaches. Ogbu argued for programs which recognize and address "that involuntary minority children come to school with cultural and language frames of reference that are not only different from but probably oppositional to those of the mainstream and school." Hopefully, future research will complement Ogbu's ethnographic studies, and identify a successful mixture of programs which deal with rather than ignore cultural barriers.

Figure 1
SCATTERPLOT OF PERCENT OF STUDENTS
PASSING ALL 4 PROFICIENCY TESTS
WITH PERCENT NOT ELIGIBLE FOR FREE LUNCH



191 cases plotted. Regression statistics of PASSALL4 on NONFREE:
Correlation .42904 R Squared .18408 S.E. of Est .12164 Sig. .0000
Intercept(S.E.) .14530(.01697) Slope(S.E.) .40672(.06229)

Figure 2
Poverty and Proficiency
for Several Contiguous Neighborhoods



Res. Zone	NONFREE	PASS ALL 4	# Tested	Grade 1-3 School	Grade 4-6 School	Grade 7-8 School
A: 2011	14%	13%	23	Case	Case	Willson
B: 2012	22%	16%	44	P.L.Dunbar	M.A.Ireland	Willson
C: 2013	8%	27%	30	Wade Park	Wade Park	Willson
D: 2014	10%	13%	45	J.W.Raper	Kentucky	Willson
E: 2015	13%	12%	33	Waverly	D.E.Morgan	Willson

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